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AUTHOR Wess, Robert C.
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ABSTRACT

A teacher-written essay comparing writing to farming served as a process model for analogical student themes. This assignment, given to 39 students in 2 classes of a first course in freshman composition, produced complete analogical essays in all but 4 cases. The essays, questionnaire responses, and retrospective essays on the writing of the original assignment created a cumulative picture of student writing processes. Although unaware of any theoretical paradigms, the students wrote within a process-of-inquiry framework. Like the teacher's model, their essays manifested a four-part pattern of development: from preparatory problem, to intermediate incubation, to flash of insight, to final verification. The students' discoveries during this process can be classified according to the communication triangle--from the writer's standpoint, from that of the audience, or from that of the message itself. These discoveries can also be classified on a continuum from already known to not-known, or undiscovered. The students' success with the assignment and their follow up comments confirm the usefulness of the teacher's essay as a process model. (JL)

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A TEACHER ESSAY AS MODEL FOR STUDENT INVENTION

by

Robert C. Wess

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Southern Technical Institute
Marietta, Georgia 30060

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A TEACHER ESSAY AS MODEL FOR STUDENT INVENTION

Linda Flower and John R. Hayes recently wrote about a cognitive process model as a writing process theory, analytically presenting a conceptual framework for writing.[1] In their model, beginning with an initial problem, the writer sets goals in planning, translating, and reviewing. Illustrating the recursive nature of writing, the authors diagram a conceptual model for the entire writing process, including as part of the process the role of long and short-term memory.

My own attempt at a process model does not so much explore new ground, as does Flower and Hayes' model; rather, it inductively demonstrates the applicability of a model already developed--the four -stage process of inquiry--territory well-charted by Richard E. Young and others.[2] Specifically, I will point out how this model describes the processes of a teacher-written essay, how it "fits" student writing, and how it may be useful as a process model for composition class.

First, it is necessary to define analogy. According to the composition text used for this classroom unit, "an analogy is basically a comparison--ordinarily an extended comparison--between two things usually thought of as unlike." The progression is from something known to something relatively unknown, and its purpose is "to make the reader see that thing (the known) in a new and fresh way." As to types, literal (between two things real and existing) and figurative (metaphorical comparison between two things) were mentioned.[3] In addition, William J. J. Gordon's four types (personal, direct, symbolic, and fantasy) were also briefly presented.

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Emphasis was placed on Gordon's use of the direct analogy, which he defines as "the actual comparison of parallel facts, knowledge, or technology."[4]

But what is the connection between analogy and invention? As defined by Frank D'Angelo, "invention is the process of discovering ideas for. . . writing."[5] But how is this process generated? How continued? It is both begun and continued through the use of inventional models, such as Rohman and Wlecke's model for prewriting, Donald Murray's model for revision, or Flower and Hayes' model of the writing process. In such a model as Rohman's, for example, the writer is encouraged to invent his/her own analogies in order to discover resemblances, to see the familiar in the strange, to re-see the world.[6] A similar goal was employed by students in this study. Analogy, therefore, may be seen as a catalyst in producing invention. The analogical models themselves are examples of invention and models for the inventive process. The problem, however, is that given the textbook models which portray analogical models, how is one to find a model for the process which generated that product? One answer lies in the use of a teacher model.

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This essay, in attempting to solve this specific problem, focuses on the use of teacher-written essays. As a writing teacher, I teach writing by writing my own examples. For this particular class assignment, it so happened that I already had written such a model, an essay I had produced as guest editor for a rural and small-town newspaper. The essay was entitled "Cultivating a Product: Farming and Writing," which compared by direct analogy the idea of seed planting, growth, and harvesting to the germination of ideas, their expression in the writing process, their harvesting in terms of publication.

In describing my writing process in producing this essay, I discussed its beginning point--the problem of whether to accept the invitation to write the editorial or not. Second, after accepting the invitation, I faced the problem of what to write about. Since I served as Coordinator of Composition at a local state college, I quickly focused on the topic of writing. With this general topic in mind, my purpose crystallized itself into the idea of informing a rural and small-town community about writing--its beginnings, its hard work, and its goals. Another problem remained, however, and that was how to communicate the message.

In retrospect, I noticed that my essay began with a known, my knowledge of the writing process. The relative unknown, the analogy itself, was still waiting to be discovered. At this point, it should be noted, I was not even aware that I would write an analogical essay. I was still concerned with precisely what to say and how to say it to this particular audience. (This point marked the problem stage of the inquiry process although I did not think of this classification at the time.)

My rumination on the topic over the next several days could be described as the incubation period, a time for letting the task percolate in my mind. During this period I consciously sought out possible topics that might work; I even examined student essay topics for possible leads since most of my students were local and chose their own essay topics.

About one week later, wtill searching for an editorial topic, I sat down to write my original brainstorming page. Here is an exact excerpt from that page.

1. *Uses of Description*
    1. *In studying blood types, must read des[cription]*
    2. *In survey work, make reports*
    3. *In claims, we do work*

2. *Importance of Agriculture in Robeson County, big buck*
   1. *Big plant*

3. *Writing, big dividends, in Robeson County*

4. *Focus on students I see: what to be a success. Writing is a primary tool of educated man. What a plough does for the farmer, the pen does for the writer. Both open up resources which later will mire a harvest.*

I quote this prewriting material in full to point out my groping for a topic (#1), my focus on agriculture (#2), my focus on writing (#3), and my synthesis: writing as analogous to agriculture (#4). My illumination came in Number Four, for it was this analogy which would become the basis for the ensuing essay.

In analyzing this prewriting session, another noteworthy item is that both topic and analogy resulted from my consideration of audience (the people of Robeson County--a rural farm community). In this sense, it might truly be said that the heuristic employed here is audience-based, for it was through consideration of audience that the discovery of topic took place.

I felt inspired as I wrote the first draft of the essay. In fact, it was written in the early morning just after waking. I felt exuberant in writing, thinking confidently that I had "found" a topic which would appeal to readers, which made sense in explaining the writing process concretely, and which nicely paralleled the process of cultivating farm products. These reasoned feelings correspond to what later I would identify as an internal verification.

From an external perspective, the essay was published by the local newspaper. The fact that I received compliments from the editor, as well as from a few colleagues and townspeople, gave external verification to the essay's value.

In describing my own process of creating the analogy and analogical essay, I hoped to stimulate students toward similar inventiveness. Since

the textbook provided a product-only model, I hoped that my process model would better enable students to generate their own inventive processes in exploring topics and in writing their essays.

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The products resulting from this study were pleasantly surprising. All but four of the thirty-nine students in two classes of English 101, a first course in freshman composition, created complete analogical essays. These essays generated a wide variety of analogies, from comparing a computer to the human mind, parents to artists, a job application to trial by judge, to comparing a quarterback to a general, etc., etc. In addition to these completed essays, students also filled out a five-point questionnaire discussing new ideas or feelings generated, the hope-for effect on audience, the ranking of preparation materials, and specific tips gleaned from the study of teacher-written models. Besides essays and questionnaire responses, students also wrote retrospective essays in which they attempted to recall and describe their processes in writing analogical essays. Since their retrospective essays were written immediately after completion of the analogical essays, the possibilities for recall were good. The students, however, unaware of the inquiry process paradigm, did not discuss many instances of potentially useful information. For that reason, I decided to compile a cumulative picture of their writing processes as provided by their essays, questionnaire responses, and retrospective essays.[7]

It is significant to note that students registered not only cognitive insights through their use of analogy but emotional ones as well. For example, the young lady who compared the computer to the human mind wrote:

> One main feeling that I expressed in my essay was my distaste for computers over the human mind. I believe that there is a time for computers, but I strongly feel that nothing can exceed the usage and value of the human mind.

A male student who compared mechanics to physicians wrote that he wanted "to express how important a mechanic's work was. . . .and a doctor is always looked up to."

In analyzing the various kinds of information found in student essays, questionnaire responses, and retrospective essays, I had a problem in determining how best to analyze these rich sources of information. I considered analyzing this data, for example, in light of the communication triangle. But such a focus would take me away from the topic of invention. I then considered exploring problem-solving strategies as a primary target, but such strategies are so varied and I felt the need for a single focus. In reading and rereading student materials, the basis for analyzing the data eventually emerged from the materials themselves. It was at this point that the idea of using the inquiry process came to mind. It seemed appropriate to describe students' processes in terms of preparation, incubation, illumination, and verification. The following composite model, therefore, based on student materials, traces student writing processes within the process-of-inquiry framework. Like the teacher model, student essays manifest the pattern of development from preparatory problem, intermediate incubation, the flash of insight, to final verification. It should be noted, however, that this process model was not known to students at all. It was only later that the suitableness of this model manifested itself.

Three phases occur during the preparation stage of inquiry: initial awareness of a difficulty, formulating that difficulty as a problem, and exploration of the problem. In class, the initial awareness of the difficulty came with the announcement of the essay assignment itself. Formulating that difficulty as a problem for students in the classroom took several forms, each presented as a heuristic procedure as follows.

A Heuristic Using the Communication Triangle

1. What is the topic I both know and enjoy that I wish to explain to others? With this specific topic as my known, with what specific topic will I compare it in order to clarify its meaning to others?

2. To whom am I trying to explain my topic? What specific group would I like to understnad it? What analogy will best enable me to communicate that topic to my intended audience.

3. What will be my role in communicating my topic to this audience? What will my stance be as the author of this essay?

A Heuristic Using Problem-Solving Techniques

1. Given this particular audience and my particular topic of interest, what analogy will best create an understanding of that topic?

2. What topic as an analogy do I and my audience both know about which would illuminate my topic of interest for them?

The final preparatory phase was exploring these questions/problems in search of a workable solution.

Student response to the difficulty and formulation of the problem for themselves was fairly typical. As one student related in a retrospective essay: "Being told that we were required to do an in-class essay on analogy, I began trying to figure out what a good topic might be." Some students, however, initially reacted to the difficulty with "confusion," "dread," or "fear." Nevertheless, the process of internalizing the problem and owning it generally took place before individual exploration. As one student said: "I knew I wanted my subjects to be exciting and interesting to readers of all age groups."

Individual methods for exploring the problem were varied. Some students explored it by reviewing either the concept of analogy, the examples taken in class, or both. For others, direct reflection on possible topics was their mode of exploration. Still others relied on discussing the problem with friends or spouses. Several students, in fact, discovered their topic through such an exploration. One student spent some time in the

morning, afternoon, and evening reflecting on potential topics. The most common exploratory approach, however, was brainstorming. An architectural engineering technology major said: "After brainstorming for ideas, it came to me that I should write on something I know a little about." The construction of a building became his known topic. "Then I began writing down things which were similar to my topic that would make a good comparison for an analogy." The resultant essay compared the construction of a house to baking a cake for people who know little or nothing about architecture. Another student who had played on a high school basketball team was taken with the idea of communicating the teamwork involved in playing basketball. This was a topic on which he was knowledgeable and had a keen interest. His goal focused on thinking "of things that could be used to help describe basketball in analytical terms." His essay compared the operation of a basketball team to that of a delicately tuned piece of machinery.

Exploration, the process of discovering ideas to write on, continues through the writing and sometimes even during the rewriting stages of composing. One student in prewriting focused on playing football as compared to the game of life. After fifteen minutes of writing, however, realizing that his topic was too broad, he began focusing on football as compared to going to school. In rewriting, he again re-discovered his topic: this time playing football was like taking a test. This example illustrates the recursiveness of writing and the importance of narrowing one's topic.

Following the preparation stage is "a period of subconscious activity that is somewhat mysterious and hard to discuss explicitly." This incubation period, though often ignored, is a vital part of the inquiry process. The subconscious intelligence is not only "a strong and vital force in our mental life that seems to have a greater capacity than reason for dealing

with the complex and the unfamiliar," it also "continues to work even after that person has shifted his attention to other matters."[8] Here, as in the other stages of inquiry, students exhibited various manifestations of the unconscious mind at work. The common denominator is the time interval in which the conscious mind focuses on something else or is dormant in sleep while the subconscious mind works on the problem to be solved.

A number of students specifically recalled the period of time just before illumination. For one, this incubation period came as a break from study: "After a great deal of thought and no solutions, I decided to take a coffee break. I began to cook dinner putting all my thoughts concerning English in the back of my mind." It was during this break that she discovered her topic: comparing the computer to the human mind. One male student described his incubation period as a time of drifting:

> I was thinking of what I would write when my mind started to drift. I started thinking about my classes, my friends, and even why I was here at this school. Later my mind drifted to the past to when I was little. I started thinking of the things I did then. It was then I thought of a topic.

His topic became the comparison of his lifelong interest in art compared to writing an essay.

The incubation period also manifested its presence while the writer was performing another conscious activity. For one it was studying:

> Having thought about it [a good topic] for awhile and still drawing a blank, I lay down on my bed to catch up on some algebra homework. As I did a few matrices, a title popped into my head. After doing another [math] problem, I came up with my analogy.

For another student, the conscious activity was leisure-time reading:

> I got my first idea when I was reading Road and Track, a sportscar magazine. I was reading an article about an Austin Martin. In it, the writer was describing the all-aluminum, double-cam engine in the car. The engine was a beautiful work of art and each engine was built by one mechanic. And when the engine was completed, the mechanic placed a gold plate that had his name on it, and when and where the engine was built. By reading this article I realized how masterful a mechanic must be.

The "first idea" referred to here is comparing a mechanic to a physician, the illumination which provided the basis for his essay. For a third student, incubation came during a leisure-time activity. "At home I tried to think of a topic, but my frustration was making the assignment harder than it was. I went to the local arcade to relax and this is where my topic came into my head."

Several students placed the final phase of their incubation period specifically in sleep, when the conscious mind was dormant. For one, he had avoided his topic all day. He tried to focus on one, but his mind wandered or he would get involved in doing something else. At bedtime, however, "as I drifted off to sleep, the different possibilities for a topic had completely overtaken my mind. I awoke the next morning with my mind glued to the same topic as the night before." A similar situation is described by another student: "It wasn't until about 1 a.m. that I woke up from my sleep with the idea of taking a test is like war."

The third stage--illumination--occurs when "there is an imaginative leap to a possible solution, a hypothesis." Since this solution is dependent on the unconscious activity of the mind, "one can never be sure just when it will come."[9] A number of students experienced this phase even though they had not been informed of it. The data presented to describe the incubation period in each case culminates in the stage of illumination. These flashes of insight, sudden illuminations, as just illustrated, had come during such diverse activities as taking a break, letting the mind drift, performing some other activity, like studying math, reading leisurely, or even sleeping.

But how can we characterize these points of discovery, these inventions of new ideas? One way, of course, is by seeing them in terms of the

communication triangle: from the writer's standpoint, that of the audience, and the message itself. A second way is by classifying the discoveries generated on a continuum from already known to not-known or undiscovered. In terms of the communication triangle, there is the position of the writer: What new knowledge was gained? According to these student writers, a great deal of new knowledge was gained. A former high school baseball player stated that "my use of analogy gave me new insight on college life." Another said: "I understood more of what a mechanic's work was like and how important it is." Someone else reflected that "I had never before considered how chess characters compare with the social classes." One fellow at first denied, then affirmed his discovery. To the question whether the analogical essay led to new insight, he responded: "Not really, though I had never looked at parenting [in terms of sculpturing] in that way."

The impact of discovery was not lost on the sense of audience. Asked whether their use of analogy would be helpful to their intended audience, students replied positively. One said that "a person usually might not understand how a good team operates." Another suggested that "the analogy may help the reader to see new insights of how society is cruel [as pawns easily disposed of]." The reader, identified as a high school baskeball player, "can see how hard college will be and since he can relate to it through baseball [something he understands], it will be more memorable."

As to the message, some student writers communicated a purely cognitive message: understanding the operation of a good basketball team, a human eye, or the construction of a song, an essay, or a building. In other instances, however, the message contained affective as well as cognitive material. For example, one student stated that his comparison "made you appreciate the work a parent does when you think of him as a sculptor."

Another student, a young lady who worked at Penney's in the credit department, also emphasized the affective function of her message. In comparing her job to working at a circus, she now "can look at work with a new attitude and enjoy it."

Finally, in classifying the insights of student writers in terms of knowledge discovered, it may be helpful to see that knowledge as a band or continuum. On the left side of this band is the range of knowledge already known; to the right side is knowledge less known or even predictive. Some student writers, dealing with knowledge on the left side of the continuum, found analogy useful "simply to organize or identify relationships between the terms."[10] They focused on such topics as comparing the eye to the camera, building construction to cake construction, and a basketball team to a machine. For others, however, whose knowledge covered both left and right sides of the band, analogy was used in an exploratory, even predictive way. For example, one student wrote: "I already knew how to care for a baby and a puppy [organizational function], but I didn't know it was so similar [exploratory and predictive function]. Another student who compared playing baseball with going to college wrote: "Yes, my use of analogy gave me new insight on college life. Even though I have been at college for one quarter, I had very little knowledge of it. After the analogy, I could relate to college life more than before the essay." In this instance, college life is still relatively unknown, yet the student through the analogy has explored and predicted how it will be.

One female student, who compared belief in God to belief in Santa Claus, moved her thinking to the far right side of the continuum, "where the meaning of one of the terms is not known, [where] the analogy performs a predictive(heuristic) function and is selected from among other analogies only."[11] As she compared belief in God to belief in Santa Claus, the pre-

dictive function of her analogy "brought out the revelation [to her] of just how simple and almost childlike it is to be able to believe totally (no agnosticism)."

The fourth stage of the inquiry process is verification. This stage is the testing stage of the hypothesis. Means for testing the illumination can be varied, from informal strategies to scientific experimentation. It is the stage of conscious reason probing and examining the insights gained to make sure they are sound and accurate. For this study, two methods of verification were identified: internal and external.

For students, internal verification came as a sense of rightness about the analogy even after examination and close scrutiny. Although this process is a rational one, students described it as a good feeling, a feeling of satisfaction or rightness about the topic. For some, this feeling came quickly, during prewriting. A male student who compared construction to cake-baking said: "At first it was hard to find a good topic to write on, but after writing ideas on my knowledge of construction, the analogy became easy to write." Another young man related that he "chose a structure which seemed to flow smoothly. Words and specific description came naturally."

Others got such a feeling while writing or rewriting. One student related that "when it came time for the writing to begin, the words and sentences began to roll remarkably easy." Another stated: "All the facts had been brought and the essay was easy. I breezed along with ideas coming from left and right." One student expressed satisfaction after writing: "Feeling confident with the body of my analogy, I felt no need to rewrite anything."

For several students, hypothesis-testing required alterations in their

topics either during prewriting, writing, or rewriting. One student discovered during prewriting that "there were many aspects of life which didn't apply to chess at all. Clearly my job was to narrow the subject of life down to something simpler. I came up with society almost immediately." Another revised his topic both during writing and rewriting, each time narrowing his focus, first from comparing football to life (prewriting), then from comparing football to going to college (writing), and finally to comparing football with taking a test. At this point he commented: "This topic was more specific than the other two; therefore, I was able to form a more specific and detailed analogy." This retrospective analysis underscores Richard E. Young's caveat to resist "the impulse to commit yourself to a solution too quickly."[12]

External verification in this study came with the teacher's evaluation. Since such a high percentage of the students (87%) wrote complete analogies at a satisfactory or higher level, this phase of verification proved positive. External verification, however, could have included other means of evaluation as well, such as peer reading and critiquing. Such a method could provide an alternate and equally valuable means of external verification.

Conclusion

At the onset, the essay of analogy appears difficult to most students. Some even imagine it to be the hardest type of essay they have ever had to write. Through careful preparation, however, students often come to like it. Through their exploration and invention of topics, their facility and enjoyment increase. As one student put it: "When I fist thought about doing an analogy, I thought it would be impossible. Now that I have done one, it doesn't seem too hard. As a matter of fact, I kind of like them."

But what can be said of the teacher model? Had it been important? The teacher model provided a realistic portrayal of the processes involved in writing an essay of analogy. It enabled students to see mode subordinated to end; that is, the teacher analogy was written with a specific aim, and the use of analogy was the means of achieving that aim. The teacher model also allowed students to see the use of audience-based and problem-solving heuristics hands-on, not through abstract definition but through practical application, including a specified audience. Third, it illustrated the importance of pre-writing. As one student reflected: "The most important tip [from the teacher model] would be the prewriting. Prewriting played an essential role in my essay. Without it my essay would have been a flop."

The teacher model provided other advantages as well, in terms of invention, structure, development, and diction. As one student said: "The teacher model helped me generate my own essay the most." A number of students emphasized the value of the teacher model's outline and structure. Several, for example, said that the teacher essay "gave an example of format and structure" and that "the patterns of the teacher essays were important." In terms of development, the teacher example helped several students learn "that the analogy must be carried all the way through." Even regarding diction, students learned from the teacher model the use "of descriptive words which will describe both examples. . ." and of the "importance of concrete words and phrases. . ."

The value of the analogical essay is evident both from student comments and from their ability to invent ideas for writing the essay successfully. In addition to cognitive and affective insights, students extended their understanding of invention. One better understood the conceptual process of composing: "In writing and pre-writing the essay I seemed able

to visualize an abstract process which before I had only done. It may seem strange but I never visualized writing a song. I just did it." Another transferred the writing of analogy to previous reading: "Now I realized that I have read a lot of stories with the usage of analogy." Others reflected on future usefulness: "It made me realize that I can compare two things that seem totally unrelated. . .that one known topic can be used to help clarify an unknown topic." But invention in the present time also increased: "In writing an analogy I can now see many likenesses or bases for comparison that I didn't even realize before." One student even presented an example: "During the use of analogy I never thought of applying my own feelings until I was driving down the highway during the early morning hours. I realized my life could be compared with the lonely feeling of driving down the highway." And that comment came from a C- student! As such, it underscores the inventive powers which this assignment stimulated in the students.

Endnotes

[1]"A Cognitive Process Theory of Writing," College Composition and Communication, 32 (December, 1981), 365-387.

[2]Richard E. Young, Alton L. Becker, and Kenneth L. Pike, Rhetoric: Discovery and Change (New York: Harcourt Brace Jovanovich, Inc., 1970). See Chapters Four through Seven. Ideas quoted or paraphrased in this essay which define or describe the inquiry method are taken from these chapters.

[3]Quotations and other ideas defining analogy in this paragraph are taken from Charlene and A. M. Tibbetts, Strategies: A Rhetoric and Reader (Glenview, Illinois: Scott, Foresman & Co., 1981), p. 166.

[4]Synectics (New York: Collier MacMillan Co., 1961), p. 42.

[5]Process and Thought in Composition (Cambridge: Winthrop Publishers, Inc., 1980), p. 5.

[6]D. Gordon Rohman and Albert O. Wlecke, Prewriting (Washington: Cooperative Research Project No. 2174), pp. 32-39 and 61-66.

[7]All quotations of students will be taken from these three sources,

quoted as given. Bracketed material has been editorially added.

[8]Young, p. 74.

[9]Quotations and ideas in this paragraph are from Young, pp. 73-74.

[10]James R. Wilcox and H. L Ewbank, "Analogy for Rhetors," Philosophy and Rhetoric, 12 (Winter, 1979), 6.

[11]Wilcox, 8.

[12]Young, p. 74.